

Serial No.: 10/812,276
Amdt. dated 31 May 2006
Reply to Office Action of 20 March 2006

REMARKS

As noted previously, the Applicant appreciates the Examiner's thorough examination of the subject application.

Nine (9) claims remain in the application: claims 1-9.

Claims 1, 5, and 8 have been amended herein to more clearly define the invention. The present application as originally filed supports these amendments. No new matter has been added.

Applicant requests reconsideration and further examination of the subject application based on the foregoing amendments and the following remarks.

Claim Rejections – 35 U.S.C. § 103

Claims 1-4

Concerning items 1-2 of the Office Action, claims 1-4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,851,859 to Rappaport ("Rappaport") in view of U.S. Patent No. 3,115,630 to Lanford ("Lanford"). Applicant traverses the rejection for the following reasons.

Amended claim 1 is directed to a discone antenna that includes "a cone-shaped element, the physical shape of which is at least partially defined by at least one pleat, wherein each pleat includes two faces joined at a vertex having an included angle of less than 180 degrees as directed away from a principal axis of the cone-shaped element, and wherein the two faces of the pleat do not substantially overlap one another in a direction transverse to a bisector of the included angle."

In contrast, Rappaport teaches a conventional discone antenna that includes a tuning cavity. See, Rappaport, col. 2, lines 6-22. As the Examiner admits, Rappaport does not describe or suggest

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a discone antenna including a cone-shaped element, "the physical shape of which is at least partially defined by at least one pleat, wherein each pleat includes a vertex defining an included angle of less than 180 degrees as directed away from a principal axis of the cone-shaped element" as recited in previously presented claim 1. Rappaport, furthermore, does not teach or suggest the limitations of amended claim 1 including that "each pleat includes two faces joined at a vertex having an included angle of less than 180 degrees as directed away from a principal axis of the cone-shaped element, and wherein the two faces of the pleat do not substantially overlap one another in a direction transverse to a bisector of the included angle."

Lanford, the secondary reference cited by the Examiner, is directed to "packaging arrangements, and more particularly to a method of compactly packaging a centrifugally expandable lightweight and flexible sheet of material, such for example as a space reflector." See Lanford, col. 1, lines 15-19.

For the rejection, the Examiner cited Lanford, col. 2, lines 13-27, as teaching "wherein each pleat includes a vertex defining an included angle of less than 180 degrees as directed away from a principal axis of the cone-shaped element." Applicant respectfully traverses this characterization of Lanford as the pleats shown and described in Lanford are folds in flexible material that are spirally wound for packaging consideration, with the pleat faces folded into contact with one another along substantial portions of the respective surface areas. To clarify the differences between the Applicant's claimed antennas and Lanford, claim 1 has been amended to include "each pleat includes two faces joined at a vertex having an included angle of less than 180 degrees as directed away from a principal axis of the cone-shaped element, and wherein the two faces of the pleat do not substantially overlap one another in a direction transverse to a bisector of the included angle." Lanford, like Rappaport, neither teaches nor suggests wherein the two faces of the pleat do not substantially overlap one another in a direction transverse to a bisector of the included angle.

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Accordingly, neither Rappaport nor Lanford, whether considered alone or in combination, disclose or suggest the limitations of amended independent claim 1, which is patentable over the cited references. Because claims 2-4 depend from claim 1, they are patentable for at least the same reason(s). Applicant, therefore, requests withdrawal of the rejection of claims 1-4 under 35 U.S.C. § 103(a).

Claims 5-7

Concerning item 5 of the Office Action, claims 5-7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 3,656,166 to Klopach et al. ("Klopach") in view of Lanford. Applicant respectfully traverses the rejection and requests reconsideration for the following reasons.

One requirement for a rejection under 35 U.S.C. § 103(a) is that the cited reference(s) teach or suggest each and every limitation in the claim(s) at issue. In this situation, Klopach and Lanford fail to teach or suggest each and every limitation in amended claim 5, which is the base claim for claims 6 and 7.

Amended claim 5 recites a bicone antenna "including two cone-shaped elements, the physical shape of at least one of which is at least partially defined by at least one pleat, wherein each pleat includes two faces joined at a vertex having an included angle of less than 180 degrees as directed away from a principal axis of the cone-shaped element, and wherein the two faces of the pleat do not substantially overlap one another in a direction transverse to a bisector of the included angle."

In contrast, Klopach teaches a conventional biconical dipole antenna that includes "means within the near field of the antenna to couple a portion of the energy of the biconical dipole into the means and re-radiate the energy at a retarded phase with respect to the energy radiated or received by the biconical dipole to achieve circular polarization." See Klopach, col. 1, lines 26-31. Klopach explains that the coupling means "are a plurality of passive members each of which includes three

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diamond shaped metal elements.” See Klopach, col. 1, lines 31-33.

As the Examiner admits, Klopach does not describe or suggest a bicone antenna including two cone-shaped elements, “the physical shape of at least one of which is at least partially defined by at least one pleat, wherein each pleat includes a vertex defining an included angle of less than 180 degrees as directed away from a principal axis of the cone-shaped element” as recited in previously presented claim 5. Klopach, furthermore, does not teach or suggest the limitations of amended claim 5 including that “each pleat includes two faces joined at a vertex having an included angle of less than 180 degrees as directed away from a principal axis of the cone-shaped element, and wherein the two faces of the pleat do not substantially overlap one another in a direction transverse to a bisector of the included angle.”

For the rejection, the Examiner cited Lanford, col. 2, lines 13-27, as teaching “wherein each pleat includes a vertex defining an included angle of less than 180 degrees as directed away from a principal axis of the cone-shaped element.” Applicant respectfully traverses this characterization of Lanford as the pleats shown and described in Lanford are folds in flexible material that are spirally wound for packaging consideration, with the pleat faces folded into contact with one another along substantial portions of the respective surface areas. To clarify the differences between the Applicant’s claimed antennas and Lanford, claim 5 has been amended to include “each pleat includes two faces joined at a vertex having an included angle of less than 180 degrees as directed away from a principal axis of the cone-shaped element, and wherein the two faces of the pleat do not substantially overlap one another in a direction transverse to a bisector of the included angle.” Lanford, like Klopach, neither teaches nor suggests wherein the two faces of the pleat do not substantially overlap one another in a direction transverse to a bisector of the included angle.

Because Lanford fails to cure the deficiencies noted above for Klopach, neither of these references, whether considered alone or in combination, disclose or suggest the limitations of

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amended independent claim 5, which is patentable over the references. Because claims 6-7 depend from claim 5, they are patentable for at least the same reason(s). The rejection of claims 5-7 under 35 U.S.C. § 103(a) is therefore with proper basis and should be removed accordingly.

Claim Rejections – 35 U.S.C. § 102

Concerning items 6-7 of the Office Action, claims 8-9 were rejected under 35 U.S.C. § 102(b) as being anticipated by Rappaport. Applicant respectfully traverses this rejection and requests reconsideration for the following reasons.

For a rejection under 35 U.S.C. § 102(b), the cited reference must teach each and every element as arranged in the claim(s) at issue. In this situation, Rappaport fails to teach all of the elements of amended claim 8.

Amended claim 8 includes “an antenna including a disc-shaped element, the physical shape of which is at least partially defined by a deterministic fractal geometry.”

For the rejection of claims 8-9, the Examiner stated that Lanford teaches an apparatus comprising “an antenna including a disc-shaped element, the physical shape of which is at least partially defined by a fractal geometry.” Applicant traverses this characterization of Lanford, as Lanford does not teach or suggest a disc-shaped element but rather a folded configuration of a flexible material. To clarify the differences between the Applicant’s claimed antennas and Lanford, claim 8 has been amended to include that the physical shape of the antenna “is at least partially defined by a deterministic fractal geometry,” which is supported by the specification as filed at least by the incorporation by reference of Applicant’s co-owned U.S. Patent No. 6,140,975. Lanford does not teach or suggest an antenna including a disc-shaped element, the physical shape of which is at least partially defined by a deterministic fractal geometry, as recited in amended claim 8.

Accordingly, Lanford is not a proper basis for a rejection of claim 8 under 35 U.S.C. § 102(b)

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and claim 8 is therefore patentable over Lanford. Because claim 9 depends from claim 8, it is patentable for at least the same reason(s) as claim 8. The rejection of claims 8-9 under 35 U.S.C. § 102(b) should therefore be withdrawn.

Conclusion


In view of the amendments and remarks submitted herein, applicant believes that all claims in the present application are in condition for allowance, and respectfully requests a Notice of Allowance for the application.

If a telephone conference will expedite prosecution of the application, the Examiner is invited to telephone the undersigned.

Authorization is hereby given to charge our deposit account no. 50-1133, for any fees(s) required for the prosecution of the subject application.

Respectfully submitted,
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